

CLAIMS

Now, therefore, the following is claimed:

1 1. A system for notifying users of impending arrivals of vehicles at particular
2 locations, comprising:
3 memory storing a first time value, said first time value indicating when a user should be
4 notified of an impending arrival of a vehicle;
5 a clock configured to produce a second time value;
6 a route handler configured to receive a status message from said vehicle and to transmit
7 an update request when said vehicle is off schedule based on said status message;
8 a schedule monitor configured to compare said first time value to said second time value
9 and to produce and transmit a notification request based on a comparison of said time values,
10 said schedule monitor further configured to update said first time value in response to said update
11 request; and
12 a communication handler configured to receive said notification request and to transmit a
13 notification message to said user in response to said notification request, said communication
14 handler further configured to store said notification request and to determine a number of
15 notification requests stored by said communication handler, said communication handler further
16 configured to compare said number of notification requests to a threshold number and to cause
17 reallocation of notification requests between said communication handler and at least one other
18 communication handler based on a comparison of said number of notification requests to said
19 threshold number.

1 7. The system of claim 1, wherein said route handler is further configured to produce
2 a list of notification events that are expected to occur within a particular time period, said route
3 handler further configured to include said first time value in said list in response to a
4 determination that said first time value is associated with a notification event that is expected to
5 occur within said particular time period, said schedule monitor further configured to analyze said
6 list to determine whether any notification requests should be transmitted to said communication
7 handler.

1 8. The system of claim 1, wherein said schedule monitor is implemented within a
2 first computer system and said communication handler is implemented within a second computer
3 system.

9. A system for notifying users of impending arrivals of vehicles at particular locations, comprising:

a database storing data associated with a plurality of vehicles;

a route handler configured to analyze said data and to select portions of said data that are associated with notification events expected to occur during a particular time period;

a schedule monitor configured to analyze said selected portions of said data during said particular time period and to disregard other portions of said data during said particular time period, said schedule monitor further configured to determine when at least one of said notification events should occur based on said selected portions of said data and to transmit a notification request in response to a determination by said schedule monitor that said at least one notification event should occur; and

a communication handler configured to receive said notification request and to transmit a notification message in response to said notification request.

10. The system of claim 9, wherein said communication handler is configured to simultaneously transmit a plurality of notification messages across a plurality of communication lines.

1 11. The system of claim 9, wherein said communication handler is configured to store
2 said notification request and to determine a number of notification requests stored by said
3 communication handler, said communication handler further configured to compare said number
4 of notification requests to a threshold number and to cause reallocation of notification requests
5 between said communication handler and at least one other communication handler based on a
6 comparison of said number of notification requests to said threshold number.

1 12. The system of claim 9, wherein said schedule monitor is implemented in a first
2 computer system and said communication handler is implemented in a second computer system.

1 13. A system for notifying users of impending arrivals of vehicles at particular
2 locations, comprising:
3 memory storing data indicating a proximity of at least one vehicle to at least one location;
4 a route handler configured to receive status messages and to update said data based on
5 said status messages;
6 a schedule monitor configured to monitor said data and to transmit notification requests
7 in response to determinations by said schedule monitor that said at least one vehicle is within a
8 predefined proximity of at least one location; and
9 a plurality of communication handlers configured to respectively receive said notification
10 requests and to transmit notification messages in response to said notification requests,
11 wherein said schedule monitor is further configured to determine a number of notification
12 requests transmitted to one of said communication handlers within a first particular time period
13 and to allocate said notification requests between said communication handlers based on said
14 number.

1 14. The system of claim 13, wherein at least one of said communication handlers is
2 configured to store notification requests and to determine a number of notification requests
3 stored by said at least one communication handler, said at least one communication handler
4 further configured to compare said number of notification requests to a threshold number and to
5 cause reallocation of notification requests between said communication handler and another of
6 said communications handlers based on a comparison of said number of notification requests to
7 said threshold number.

1 15. The system of claim 13, wherein said route handler selects said data in response to
2 a determination by said route handler that said data is associated with notification events that are
3 expected to occur during a second particular time period.

1 16. A method for notifying users of impending arrivals of vehicles at particular
2 locations, comprising the steps of:

3 storing a first time value, said first time value indicating when a user should be notified of
4 an impending arrival of a vehicle;

5 receiving a second time value;

6 receiving a status message transmitted from said vehicle;

7 updating said first time value based on said status message;

8 comparing said first time value to said second time value;

9 transmitting a notification request to a communication handler based on said comparing
10 said first time value step;

11 determining a number of notification requests stored by a communication handler;

12 comparing said number of notification requests to a threshold number;

13 reallocating said notification request between said communication handlers based on said
14 comparing said number of notification requests step; and

15 transmitting a notification message to said user in response to said notification request.

1 17. The method of claim 16, further comprising the steps of:

2 determining whether said first time value indicates a time within a particular time period,

3 said particular time period including a time indicated by said second time value; and

4 performing said comparing said first time value step during said particular time period in

5 response to a determination in said determining step that said first time value indicates a time

6 within said particular time period.

1 18. The method of claim 16, further comprising the steps of:

2 creating a list of notification events that are expected to occur within a particular time

3 period;

4 including said first time value in said list in response to a determination that said first

5 time value is associated with a notification event that is expected to occur within said particular

6 time period; and

7 monitoring said list during said particular time period, said monitoring step including said

8 comparing said first time value step.

1 19. A method for notifying users of impending arrivals of vehicles at particular
2 locations, comprising the steps of:
3 storing data associated with a plurality of vehicles;
4 selecting portions of said data that are associated with notification events expected to
5 occur during a particular time period;
6 analyzing said selected portions of said data during said particular time period;
7 disregarding other portions of said data during said particular time period;
8 determining when at least one of said notification events should occur based on said
9 analyzing step; and
10 transmitting a notification message in response to said determining step.

1 20. A method for notifying users of impending arrivals of vehicles at particular
2 locations, comprising the steps of:
3 storing data associated with at least one vehicle;
4 receiving at least one status message from said one vehicle;
5 updating said data based on said one status message;
6 analyzing said data;
7 determining when to notify a user of an impending arrival of said one vehicle at a
8 particular location based on said analyzing step;
9 transmitting a notification request based on said determining step; and
10 allocating said notification request to a communication handler based on a number of
11 notification requests transmitted to said communication handler during a first particular time
12 period.

1 21. The method of claim 20, further comprising the step of transmitting a notification
2 message from said communication handler in response to said notification request, said
3 notification message indicating said impending arrival of said one vehicle.

1 22. The method of claim 20, further comprising the steps of:
2 storing said notification request in said communication handler;
3 determining a number of notification requests stored in said communication handler;
4 comparing said number of notification requests to a threshold number;
5 transmitting said notification request to another handler based on said comparing step;
6 and
7 transmitting a notification message from said other communication handler in response to
8 said notification request, said notification message indicating said impending arrival of said one
9 vehicle.

1 23. The method of claim 20, further comprising the step of selecting said data in
2 response to a determination that said data is associated with notification events that are expected
3 to occur during a second particular time period.